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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/880,333	06/13/2001	Francois Silve	21891.04000	5800

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John W. Carpenter  
CROSBY, HEAFEY, ROACH & MAY  
P.O. Box 7936  
San Francisco, CA 94120-7936

EXAMINER

PHAN, THAI Q

ART UNIT	PAPER NUMBER
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2128

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DATE MAILED: 01/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/880,333

Applicant(s)

SILVE, FRANCOIS

Examiner

Thai Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 25-31 is/are rejected.
- 7) ☒ Claim(s) 21-24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 02.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

This Office Action is in response to patent application S/N: 09/880,333. Claims 1-31 are now pending.

#### ***Drawings***

The informal drawings are acceptable for examination.

#### ***Information Disclosure Statement***

The information disclosure statement filed on Oct. 14, 2003 has been received and considered by the examiner.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 20 is rejected under 35 U.S.C. 112, second paragraph for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 cited L and U, but does not provide the meanings of L and U. The claim is thus unclear.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-20 and 25-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent no. 6,622,291 B1, issued to Arnold Ginetti.

As per claim 1, Ginetti discloses a method and system for synthesizing circuit Design to meet time constraints with feature limitations very similar to the claimed invention. According to Ginetti, the method of slack allocation includes steps

Setting an initial edge time for each edge in the timing graph (Figs. 1-6),

Setting a weight value for each edge in the timing graph (col. 18, lines 15-65),

Computing an amount of the available slack to be budgeted to each edge of the graph (cols. 19-21),

Iteratively distributing slack according to relative weight to determine a new timing budget for cone or buffer tree as claimed. Ginetti does not expressly a predetermined epsilon slack as claimed.

Practitioner in the art at the time of the invention was made would have found Ginetti disclosures imply the claimed limitation of the predetermined epsilon in the cone and buffer timing tree in order to distribute slack to meet timing constraints in the logic circuit design performance.

As per claim 2, Ginetti discloses net weight associated with block would imply the claimed limitation of a slack to weight ratio in distribution of slack for time budgeting.

As per claims 3 and 4, Ginetti discloses the timing graph with nodes and edges for timing analysis of a physical system as claimed.

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As per claim 5, Ginetti discloses timing cones for restricted timing domain analysis as in claim 1 above. According to Ginetti, the method of slack allocation includes steps

Setting an initial edge time for each edge in the timing graph (Figs. 1-6),

Setting a weight value for each edge in the timing graph (col. 18, lines 15-65),

Computing an amount of the available slack to be budgeted to each edge of the graph (cols. 19-21),

Iteratively distributing slack according to relative weight to determine a new timing budget for cone or buffer tree as claimed. Ginetti does not expressly the step of replacing the current slack to weight ratio with the current ratio if the predetermined step is satisfied as claimed.

Practitioner in the art at the time of the invention was made would have found Ginetti disclosures would imply the claimed limitation in order to allocate cone slack and slack distribution in the design.

As per claim 6, Ginetti discloses setting initial value for slack to weight ratio as claimed (col. 18, lines 15-65).

As per claims 7 and 8, Ginetti discloses the claimed limitations for slack distribution for the timing budget.

As per claim 9, Ginetti discloses a method and system for synthesizing circuit Design to meet time constraints with feature limitations very similar to the claimed invention. According to Ginetti, the method of slack allocation includes steps

Setting an initial edge time for each edge in the timing graph (Figs. 1-6),

Setting a weight value for each edge in the timing graph (col. 18, lines 15-65),  
Computing an amount of the available slack to be budgeted to each edge of the graph (cols. 19-21),

Iteratively distributing slack according to relative weight to determine a new timing budget for cone or buffer tree as claimed. Ginetti does not expressly a smallest slack to weight as claimed.

Practitioner in the art at the time of the invention was made would have found Ginetti disclosures imply the claimed smallest slack to weight on each edge limitation in order to allocate cone slack and timing budget distribution for positive and negative slack.

As per claims 10-20, Ginetti discloses such claimed limitations in order to allocate cone slack and distribute slack in the time graph.

As per claims 25-31, Ginetti discloses computer programming instructions in the slack allocator to allocate slack and distribute budget timing as claimed.

***Allowable Subject Matter***

Claims 21-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 21-24 further require "removing the remaining wte and tte pair if the slack to weight ratio is not lower than the slack to weight ratio of any of the lowest slack to weight pairs between intersection points of other lowest slack to weight pairs

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representing a boundary of lowest slack to weight values between and the upper and lower bounds" as claimed. Ginetti does not expressly disclose such features.

**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. US patent no. 6,378,116 B1, issued to Ginetti, Arnold, on Apr. 2002
2. US patent no. 6,480,991 B1, issued to Cho et al., on Nov. 2002

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Thai Phan whose telephone number is 703-305-3812.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Thai Phan  
Jan. 24, 2004

*Thai Phan*  
Thai Phan  
Patent Examiner  
AU: 2128